

# PATENT ABSTRACTS OF JAPAN

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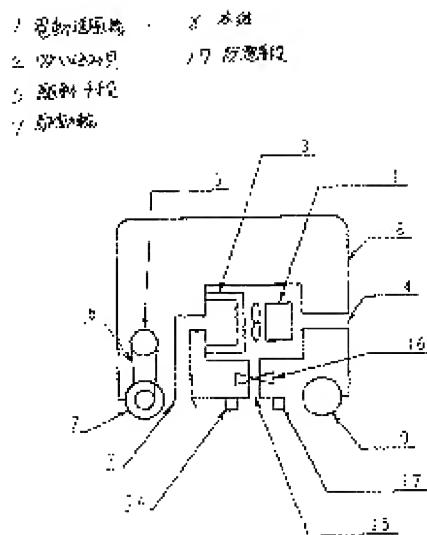
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**(54) SELF-PROPELLED VACUUM CLEANER**

(57)Abstract:

PROBLEM TO BE SOLVED: To improve dust collecting performance by reducing dust attracted to a surface to be cleaned and a main body of a self-propelled vacuum cleaner through preventing the surface to be cleaned and the main body of the self-propelled electric vacuum cleaner from being charged electrostatically.

**SOLUTION:** The self-propelled vacuum cleaner is equipped with an electric fan 1 for generating suction air, driving wheels 7 for moving the main body 8, a driving means 5 for driving the driving wheels 7, a suction device 2 for sucking the dust on the surface to be cleaned, and a discharging means 17 for generating a substance to removing static electricity. The self-propelled vacuum cleaner reduces the dust clinging to electrostatically charged objects and obtains the effect to improve the dust collecting performance.



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## CLAIMS

[Claim(s)]

[Claim 1]

A self-propelled vacuum cleaner comprising:

An electric blower which emits a sucking wind.

A driving wheel to which a main part is moved.

A driving means which makes said driving wheel drive.

A discharge means which generates a suction implement which attracts dust from a field to be cleaned up, and a substance for making static electricity discharge.

[Claim 2]

The self-propelled vacuum cleaner according to claim 1 which established a discharge means near said pars-basilaris-ossis-occipitalis exhaust port while establishing an exhaust port which emits to the atmosphere a part or all of exhaust air that an electric blower emits in a main body bottom part.

[Claim 3]

The self-propelled vacuum cleaner according to claim 1 or 2 which provided a discharge means in a suction implement.

[Claim 4]

The self-propelled vacuum cleaner according to claim 2 or 3 which adjusted quantity of exhaust air which provides a valve in an air duct of a pars-basilaris-ossis-occipitalis exhaust port and an electric blower, and is discharged from said pars-basilaris-ossis-occipitalis exhaust port with said valve.

[Claim 5]

A self-propelled vacuum cleaner given in any 1 paragraph of claims 2-4 which fluctuate a position of said second pars-basilaris-ossis-occipitalis exhaust port by forming the second pars-basilaris-ossis-occipitalis exhaust port which opens a pars-basilaris-ossis-occipitalis exhaust port and a discharge means for free passage to said pars-basilaris-ossis-occipitalis exhaust port and a discharge means while forming a wrap hood, and rotating said hood.

[Claim 6]

According to an electrification degree which formed an electrification detection means to detect a static electricity electrification degree of a cleaning face, and was detected by said electrification detection means, A self-propelled vacuum cleaner given in any 1 paragraph of claims 2-5 which adjusted quantity of exhaust air discharged from quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of an electric discharge substance which a discharge means generates.

[Claim 7]

A self-propelled vacuum cleaner given in any 1 paragraph of claims 2-6 which adjusted quantity of exhaust air discharged according to movement speed of a main part which established a speed detecting means which detects movement speed of a main part, and was detected by said speed detecting means from quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of an electric discharge substance which a discharge means generates.

## [Claim 8]

A self-propelled vacuum cleaner given in any 1 paragraph of claims 2-7 which adjusted quantity of exhaust air discharged according to tipping condition which formed a fall detection means to detect a fall of a main part, and was detected by said fall detection means from quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of an electric discharge substance which a discharge means generates.

## [Claim 9]

A dust-dirt-quantity detection means to detect quantity of dust absorbed from a suction implement is formed, A self-propelled vacuum cleaner given in any 1 paragraph of claims 2-8 which adjusted quantity of exhaust air discharged according to dust dirt quantity detected by said dust-dirt-quantity detection means from quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of an electric discharge substance which a discharge means generates.

## [Claim 10]

A self-propelled vacuum cleaner given in any 1 paragraph of claims 1-9 which a discharge means becomes from an ion generator.

## [Claim 11]

An electric blower which emits a sucking wind, a driving wheel to which a main part is moved, and a driving means which makes said driving wheel drive, A self-propelled vacuum cleaner which misses and missed static electricity for which a suction implement which attracts dust from a field to be cleaned up, a battery charger carried in said main part, a battery charger which charges said battery charger, and static electricity accumulated in said main part are missed to said battery charger, and which was provided with a terminal and accumulated in said main part at the time of charge to said battery charger.

## [Claim 12]

An electric blower which emits a sucking wind, a driving wheel to which a main part is moved, and a driving means which makes said driving wheel drive, A suction implement which attracts dust from a field to be cleaned up, and a battery charger carried in said main part, A self-propelled vacuum cleaner which missed static electricity which was provided with two or more charging terminals which accomplished and provided a pair in a battery charger which charges said battery charger, and said main part and a battery charger, and was accumulated in said main part to said battery charger via one or more of said charging terminal.

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## DETAILED DESCRIPTION

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## [Detailed Description of the Invention]

## [0001]

## [Field of the Invention]

This invention relates to electric discharge control of the static electricity electrified by use of the self-propelled vacuum cleaner and the self-propelled vacuum cleaner.

## [0002]

## [Description of the Prior Art]

The conventional self-propelled vacuum cleaner is explained using drawing 7 and drawing 8.

[0003]

Drawing 7 will be a mechanism lineblock diagram, and if the flow of the air which absorbs dust by rotation of the electric blower 1 occurs, the dust on a cleaning face is absorbed from the suction implement 2, and is caught with the vacuum cleaner bag 3, and the air which carried dust will pass the vacuum cleaner bag 3, and will be exhausted from the exhaust port 4. Rotation of the drive motor 5 is told to the driving wheel 7 by the belt 6, and the driving wheel 7 moves the main part 8. Direction of the steering wheel 9 is changed and the move direction of the main part 8 changes. The electric blower 1, the vacuum cleaner bag 3, the drive motor 5, and the belt 6 have taken the composition stored inside the main part 8.

[0004]

Drawing 8 is a control constitution figure and the direction detection means 10 detects the move direction of the main part 8, The speed detecting means 11 detects the movement speed of the main part 8, and the distance detection means 12 detects distance with the obstacle on the cleaning face acting as the main part 8 and the obstacle of movement, and the control means 13 with distance with the move direction, the movement speed, and the obstacle which were detected. Driving force is controlled by the driving wheel 7, the move direction is controlled by the steering wheel 9, it moves in a cleaning face top, avoiding an obstacle, the electric blower 1 made to generate the flow of the air which absorbs dust is controlled, and it cleans by attracting dust.

[0005]

[Problem(s) to be Solved by the Invention]

However, in the above-mentioned conventional composition, the main part 8 of the self-propelled vacuum cleaner is in contact with the cleaning face by the driving wheel 7 and the steering wheel 9, and by friction generated between a cleaning face, and the driving wheel 7 and the steering wheel 9, static electricity occurs and it is charged. When electrification quantity of static electricity [ electrified in the driving wheel 7 and the steering wheel 9 ] increases, the whole also including the pars basilaris ossis occipitalis of the main part 8 will be charged.

[0006]

Flooring of the cleaning face is carried out with the carpet, or a board and a tile in many cases. The raw materials of a carpet are wool, nylon, and an acrylic, the raw material of a board comprises wood and the tile comprises resin and an acrylic. By friction, all of these raw materials are tinged with the static electricity of positive potential. For this reason, since the electrified static electricity drew dust to the cleaning face, dust collecting performance was falling.

[0007]

This invention is preventing static electricity electrification of a cleaning face and the main part of a self-propelled vacuum cleaner, it lessens a cleaning face and the dust drawn on the main part of a self-propelled vacuum cleaner, and an object of this invention is to improve dust collecting performance.

[0008]

[Means for Solving the Problem]

To achieve the above objects, an electric blower with which this invention emits a sucking wind, It is the thing provided with a driving wheel to which a main part is moved, a driving means which makes said driving

wheel drive, a suction implement which attracts dust from a field to be cleaned up, and a discharge means which generates a substance for making static electricity discharge, Adhesion of dust in a thing which is tinged with static electricity can be reduced, and an effect that dust collecting performance can be improved can be acquired.

[0009]

[Embodiment of the Invention]

The electric blower with which the invention of this invention according to claim 1 emits a sucking wind, and the driving wheel to which a main part is moved, It is the thing provided with the driving means which makes said driving wheel drive, the suction implement which attracts dust from a field to be cleaned up, and the discharge means which generates the substance for making static electricity discharge, and adhesion of dust in the thing which is tinged with static electricity can be reduced, and the effect that dust collecting performance can be improved can be acquired.

[0010]

The electric discharge substance which is what established the discharge means near said pars-basilaris-ossis-occipitalis exhaust port, and discharges static electricity can be made easy to diffuse, while the invention of this invention according to claim 2 establishes the exhaust port which emits to the atmosphere a part or all of exhaust air that an electric blower emits in a main body bottom part.

[0011]

The invention of this invention according to claim 3 is what provided the discharge means in the suction implement, and can discharge the static electricity electrified in the cleaning face.

[0012]

The invention of this invention according to claim 4 provides a valve in the air duct of a pars-basilaris-ossis-occipitalis exhaust port and an electric blower, is what adjusted the quantity of the exhaust air discharged from said pars-basilaris-ossis-occipitalis exhaust port with said valve, and can adjust the diffusing capacity of an electric discharge substance according to the quantity of exhaust air.

[0013]

While forming a wrap hood, the invention of this invention according to claim 5 a pars-basilaris-ossis-occipitalis exhaust port and a discharge means, The second pars-basilaris-ossis-occipitalis exhaust port which is open for free passage to said pars-basilaris-ossis-occipitalis exhaust port and a discharge means is formed, by rotating said hood, the position of said second pars-basilaris-ossis-occipitalis exhaust port is fluctuated, and the reverse electrification of a cleaning face can be prevented.

[0014]

The invention of this invention according to claim 6 forms an electrification detection means to detect the static electricity electrification degree of a cleaning face, It is what adjusted the quantity of the exhaust air discharged according to the electrification degree detected by said electrification detection means from the quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of the electric discharge substance which a discharge means generates, and electricity can be appropriately discharged according to the static electricity electrification degree of a cleaning face.

[0015]

The invention of this invention according to claim 7 establishes the speed detecting means which detects the movement speed of a main part, According to the movement speed of the main part detected by said speed detecting means, it is what adjusted the quantity of the exhaust air discharged from the quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of the electric discharge substance which a discharge means generates, and the static electricity of a cleaning face can be discharged appropriately.

[0016]

The invention of this invention according to claim 8 forms a fall detection means to detect the fall of a main part, According to the tipping condition detected by said fall detection means, it is what adjusted the quantity of the exhaust air discharged from the quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of the electric discharge substance which a discharge means generates, and the fall of an electric discharge degree or electric discharge can be stopped at the time of the fall of a main part.

[0017]

The invention of this invention according to claim 9 forms a dust-dirt-quantity detection means to detect the quantity of the dust absorbed from the suction implement, It is what adjusted the quantity of the exhaust air discharged according to the dust dirt quantity detected by said dust-dirt-quantity detection means from the quantity and/or said pars-basilaris-ossis-occipitalis exhaust port of the electric discharge substance which a discharge means generates, and electricity can be discharged according to the absorbed dust dirt quantity.

[0018]

A discharge means consists of ion generators and the invention of this invention according to claim 10 can discharge a cleaning face appropriately with the ion by which it was generated.

[0019]

The electric blower with which the invention of this invention according to claim 11 emits a sucking wind, and the driving wheel to which a main part is moved, The driving means which makes said driving wheel drive, and the suction implement which attracts dust from a field to be cleaned up, It misses and has a terminal, and it is what missed the static electricity for which the battery charger carried in said main part, the battery charger which charges said battery charger, and the static electricity accumulated in said main part are missed to said battery charger, and which was accumulated in said main part at the time of charge to said battery charger, and a main part can be discharged.

[0020]

The electric blower with which the invention of this invention according to claim 12 emits a sucking wind, and the driving wheel to which a main part is moved, The driving means which makes said driving wheel drive, and the suction implement which attracts dust from a field to be cleaned up, It has two or more charging terminals which accomplished and provided the pair in the battery charger carried in said main part, the battery charger which charges said battery charger, and said main part and a battery charger, It is what missed the static electricity accumulated in said main part to said battery charger via one or more of said charging terminal, and it can miss and a main part can be discharged without a terminal.

[0021]

[Example]

(Example 1)

Hereafter, the 1st example of this invention is described using drawing 1 – drawing 5.

[0022]

First, the composition of this invention is explained. The electric blower 1 which drawing 1 is a mechanism lineblock diagram and a cleaning functional division makes generate the flow of the air which absorbs dust, The suction implement 2 which absorbs dust, and the vacuum cleaner bag 3 which catches the absorbed dust, The driving wheel 7 which generates the power in which it comprises the exhaust port 4 which discharges the air after catching dust, and a running function portion moves the main part 8, Comprise the drive motor 5 which generates the power of driving the driving wheel 7, the belt 6 which transmits the drive motor 5 to the driving wheel 7, and the steering wheel 9 which changes the move direction of the main part 8, and an electric discharge \*\*\*\* portion, It comprises the ion generator 17 which is a discharge means which generates an electrification detection means 14 to detect the static electricity electrification degree of a cleaning face, the pars-basilaris-ossis-occipitalis exhaust port 15 which leads exhaust air to the pars basilaris ossis occipitalis of the main part 8, the exhaust valve 16 into which the exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is changed, and the ion which discharges the pars basilaris ossis occipitalis and cleaning face of the main part 8.

[0023]

Although the method of generating ion has a thing using a discharge system, a photoelectric method, and a Lenard effect, etc., it does not adhere to the method which dares to generate ion here.

[0024]

Although the conventional example explained, the cleaning face by which flooring is carried out with the carpet, or a board and a tile is charged in plus by friction. The above-mentioned ion generator 17 generates an anion, and discharges plus electrification of a cleaning face.

[0025]

The electric blower 1 made to generate the flow of the air which drawing 2 is a control constitution figure and absorbs dust, A direction detection means 10 to detect the move direction of the main part 8, and the speed detecting means 11 which detects the movement speed of the main part 8, The distance detection means 12 which detects distance with the obstacle on the cleaning face acting as the main part 8 and the obstacle of movement, An electrification detection means 14 to detect the static electricity electrification degree of a cleaning face, and the drive motor 5 which generates the power of driving the driving wheel 7, The steering wheel 9 which changes the move direction of the main part 8, and the exhaust valve 16 into which the exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is changed, It is the control means 13 which moves in a cleaning face top, avoiding an obstacle, a cleaning face static-electricity-electrification-degree-suits, responds, controls [ controls driving force by the driving wheel 7, controls the move direction by the steering wheel 9, ] the exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15, and controls the electric blower 1 made to generate the flow of the air which absorbs dust.

[0026]

(a) of drawing 3 is a characteristic figure of the electrification degree detected by the electrification detection means 14, and (b) is a characteristic figure of exhaust airflow. The vertical axis of (a) is an electrification degree, the vertical-axis upper part has a large electrification degree, and the bottom shows

that an electrification degree becomes small. The vertical axis of (b) is exhaust airflow, the vertical-axis upper part has large exhaust airflow, and the bottom shows that exhaust airflow becomes small. And (a) and (b) are time-axes and the horizontal axis follows them to the right from the left in connection with the passage of time.

[0027]

Drawing 4 is with the side view of the mechanism composition at the time of enabling it to change the exhaust direction of pars-basilaris-ossis-occipitalis exhaust air. It comprises the hood 19 which leads the pars-basilaris-ossis-occipitalis exhaust port 15, the ion generator 17, the 2nd pars-basilaris-ossis-occipitalis exhaust port 18 that exhausts the ion by which it was generated with the ion generator 17, and the ion by which it was generated with the ion generator 17 to the 2nd pars-basilaris-ossis-occipitalis exhaust port 18.

[0028]

Drawing 5 is a mechanism lineblock diagram at the time of forming the ion generator 17 in the suction implement 2. The rotary brush 20 which runs its hand through the ion generator 17 and its dust of a cleaning face to the suction implement 2 is formed.

[0029]

The exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is controlled by the following setting out. When an electrification degree is less than [  $Q_1$  ], exhaust airflow is set to 0, when electrification degrees are more than  $Q_1$  and less than [  $Q_2$  ], exhaust airflow is set to  $E_1$ , and exhaust airflow is set to  $E_2$  when an electrification degree is more than  $Q_2$ . Since it becomes easy to diffuse the ion by which it was generated with the ion generator 17 so that the exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is large, an electric discharge degree becomes large.

[0030]

The operation by the above composition is as follows.

[0031]

Since most frictions will not be between a cleaning face, and the driving wheel 7 and the steering wheel 9 in the time 0 of drawing 3 immediately after the rotation start of the electric blower 1 and the drive motor 5 and an electrification degree will be less than [  $Q_1$  ], exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is set to 0.

[0032]

Since time will pass, friction will occur between a cleaning face, and the driving wheel 7 and the steering wheel 9 in the time  $t_1$  of drawing 3 and an electrification degree will be less than [ more than  $Q_1$   $Q_2$  ], exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is set to  $E_1$ .

[0033]

Although exhaust airflow is set as  $E_1$ , since friction increases between a cleaning face, and the driving wheel 7 and the steering wheel 9 and an electrification degree becomes more than  $Q_2$  in the time  $t_2$  of drawing 3, exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is set to  $E_2$  [ larger ] than  $E_1$ .

[0034]

Since the electric discharge degree became large from the electrification degree by friction between the cleaning face, and the driving wheel 7 and the steering wheel 9 by exhaust airflow having been set as  $E_2$  and



an electrification degree will be less than [ more than Q1Q2 ] in the time t3 of drawing 3, exhaust airflow from the pars-basilaris-ossis-occipitalis exhaust port 15 is set to E1 [ smaller than E2 ].

[0035]

Thus, the ion generator 17 which generates the ion which discharges static electricity is formed in the pars basilaris ossis occipitalis of the main part 8, and it is effective in the ability to discharge static electricity electrification by friction between a cleaning face, and the driving wheel 7 and the steering wheel 9.

[0036]

The ion generated from the ion generator 17 is made easy to diffuse by establishing the pars-basilaris-ossis-occipitalis exhaust port 15 in the pars basilaris ossis occipitalis of the main part 8, and drawing a part of exhaust wind near the ion generator 17, and it is effective in the ability to improve an electric discharge degree.

[0037]

The electrification detection means 14 is formed in the pars basilaris ossis occipitalis of the main part 8, the electrification degree of a cleaning face is detected, and it is effective in the ability to perform suitable electric discharge doubled with the electrification degree by controlling the exhaust airflow exhausted from the pars-basilaris-ossis-occipitalis exhaust port 15 of the pars basilaris ossis occipitalis of the main part 8.

[0038]

Since the electric discharge area per unit time will increase and the electric discharge effect will fall if the movement speed of the main part 8 becomes high, the movement speed of the main part 8 is detected and suitable electric discharge doubled with movement speed can be performed by controlling to enlarge exhaust airflow, when movement speed is high.

[0039]

Since the anion generated from the ion generator 17 will pass the electric discharge of a cleaning face electrified in plus and will be charged in minus if the main part 8 falls and it becomes impossible to run by the function of the self-propelled vacuum cleaner itself, Minus electrification of a cleaning face can be prevented by controlling to stop generating of ion, when the fall of the main part 8 is detected and the main part 8 falls.

[0040]

Since the dust dirt quantity of a cleaning face will naturally also be referred to as [ many ], and it is necessary to enlarge the electric discharge degree of a cleaning face when there is much dust dirt quantity when there is much dust dirt quantity absorbed when it was assumed that the electrification degree of a cleaning face is the same, Dust dirt quantity is detected and suitable electric discharge doubled with dust dirt quantity can be performed by controlling to enlarge exhaust airflow, when there is much dust dirt quantity.

[0041]

When a part of exhaust air cannot be taken out to the pars basilaris ossis occipitalis of the main part 8 by a certain convenience of the mechanism composition of main part 8 inside, An electric discharge degree is controllable by controlling the quantity of the ion generated from the ion generator 17, and even if not based on control of exhaust airflow, an electric discharge degree is controllable by controlling the quantity of the ion generated from the ion generator 17.

[0042]

If a mechanism like drawing 4 is constituted, and the hood 19 is rotated as shown in a figure, direction of the 2nd pars-basilaris-ossis-occipitalis exhaust port can be changed. And since ion can be diffused that there is no nonuniformity in the cleaning face around the main part 8 if continuous rotation of the hood 19 is carried out, an electric discharge degree can be improved further.

[0043]

With a self-propelled vacuum cleaner, traveling control which retreats after stopping primarily, when escaping from and coming out from a place like a dead end besides control of going straight on or changing the move direction is performed. Since the anion generated from the ion generator 17 by the electric discharge area per unit time of a cleaning face serving as the minimum during a halt at this time may pass the electric discharge of a cleaning face electrified in plus and may be charged in minus, Minus electrification of the cleaning face under halt can be prevented during a halt of the main part 8 by making an electric discharge degree small or controlling to stop generating of ion.

[0044]

Since the ion generated from the ion generator 17 will be carried to a cleaning face by the rotary brush 20 if a mechanism like drawing 5 is constituted and the rotary brush 20 rotates, As compared with the case where ion is carried to a cleaning face by an exhaust wind, ion can permeate also into hair, such as a carpet, and the dust collecting performance of the dust in hair can also improve.

[0045]

(Example 2)

Hereafter, the 2nd example of this invention is described using drawing 6. Identical codes are attached about the portion which are the 1st example of the above, and an identical configuration, and explanation is omitted.

[0046]

drawing 6 misses the main part 8 in which it is a mechanism lineblock diagram and the battery charger (not shown) was carried as a power supply, the battery charger 21 which charges a battery charger, the charging terminal plus 22 which tells the charging current of the battery charger 21 to the main part 8, the charging terminal minus 23, and the static electricity collected on the main part 8 to the battery charger 21 — it misses and is the terminal 24. A battery charger serves as a power supply of the electric blower 1 and the drive motor 5, and let the power supply of the battery charger 21 be commercial power.

[0047]

The operation by the above composition is as follows.

[0048]

When the main part 8 moves in a cleaning face, friction occurs between a cleaning face, and the driving wheel 7 and the steering wheel 9, and the driving wheel 7 and the steering wheel 9 are tinged with static electricity. This static electricity accumulates in the main part 8. The main part 8 is continuing movement of a cleaning face, and electrical energy's of the carried battery charger continues decreasing, and the electric blower 1 and the drive motor 5 stop moving the last.

[0049]

Since the charge to a battery charger is required in order to reboot the main part 8, it charges by

connecting the battery charger 21 with the main part 8 like drawing 6. In the case of charge, the static electricity collected on the main part 8 is missed, and it misses from the terminal 24 to the battery charger 21. The battery charger 21 misses the static electricity which missed and entered from the terminal 24 to commercial power.

[0050]

Thus, since static electricity electrification to the main part 8 can be prevented and adhesion of the dust to the main part 8 can be reduced by missing the main part 8 and the battery charger 21, connecting with the terminal 24, missing the static electricity collected on the main part 8, and missing from the terminal 24 to the battery charger 21, it is effective in the ability to improve dust collecting performance.

[0051]

If it constitutes so that the static electricity collected on the main part 8 may be missed to the battery charger 21 from both the charging terminal plus 22, and charging terminal both [ any, one of the two or ] 23, even if it will miss and will not form the terminal 24, The static electricity collected on the main part 8 can be missed to the battery charger 21, and static electricity electrification to the main part 8 can be prevented with the cheap composition which misses and does not have the terminal 24.

[0052]

Thus, if it constitutes so that static electricity may be missed to the battery charger 21 from both the charging terminal plus 22, and charging terminal both [ any, one of the two or ] 23, even if it will miss and will not form the terminal 24, Since the static electricity collected on the main part 8 can be missed to the battery charger 21, it is effective in the ability to prevent static electricity electrification to the main part 8 with cheap composition.

[0053]

[Effect of the Invention]

According to this invention, by preventing static electricity electrification of a cleaning face and the main part of a self-propelled vacuum cleaner, a cleaning face and the dust drawn on the main part of a self-propelled vacuum cleaner can be lessened, and dust collecting performance can be improved.

[Brief Description of the Drawings]

[Drawing 1] The mechanism lineblock diagram of the self-propelled vacuum cleaner in which the 1st example of this invention is shown

[Drawing 2] The control constitution figure of the self-propelled vacuum cleaner

[Drawing 3] The characteristic figure of the electrification degree of the self-propelled vacuum cleaner, and exhaust airflow

[Drawing 4] The mechanism lineblock diagram at the time of enabling it to change the exhaust direction of pars-basilaris-ossis-occipitalis exhaust air of the self-propelled vacuum cleaner

[Drawing 5] The mechanism lineblock diagram at the time of forming an ion generator in the suction implement of the self-propelled vacuum cleaner

[Drawing 6] The mechanism lineblock diagram of the self-propelled vacuum cleaner in which the 2nd example of this invention is shown

[Drawing 7] The mechanism lineblock diagram of the conventional self-propelled vacuum cleaner

[Drawing 8] The control constitution figure of the self-propelled vacuum cleaner

[Description of Notations]

- 1 Electric blower
- 2 Suction implement
- 3 Vacuum cleaner bag
- 5 Drive motor
- 7 Driving wheel
- 8 Main part
- 14 Electrification detection means
- 15 Pars-basilaris-ossis-occipitalis exhaust port
- 16 Exhaust valve
- 17 Ion generator
- 18 The 2nd pars-basilaris-ossis-occipitalis exhaust port
- 19 Hood
- 21 Battery charger
- 22 Charging terminal plus
- 23 Charging terminal minus
- 24 Miss and it is a terminal.

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[Translation done.]

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A 4 7 L	7/04	A 4 7 L	7/04	Z	3 B 0 0 6
A 4 7 L	9/00	A 4 7 L	9/00	B	3 B 0 5 7
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			電器産業株式会社内		
最終頁に続く					

(54) 【発明の名称】 自走式電気掃除機

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